Ref 7/c

Year XVII March, 1943 No. 3

INTERNATIONAL INSTITUTE OF AGRICULTURE

# INTERNATIONAL BULLETIN OF PLANT PROTECTION

PUBLISHED MONTHLY

REPRINT FROM THE 'INTERNATIONAL REVIEW OF AGRICULTURE'

## CONTENTS

**Discoveries and Current Events.** — Spain: Control Measures for the Larvae of *Chironomus* and *Ephydra* in Rice-fields, p. 33. – Italy: The Use, as Winter Treatment, of Tar-free Pyroligneous Acid Obtained by Distillation of Wood in the 'Draghetti' Charcoal Furnace, p. 33. – Rumania: Bacterial Gummosis of the Sugarbeet, p. 34

**Legislative and Administrative Measures.** — Germany, p. 39 – Germany (Eastern Occupied Countries), p. 39 – Spain, p. 39 – Italy, p. 41 – Portugal, p. 41 — Switzerland, p. 41.

**Recent Bibliography,** p. 42

IMPERIAL MYCOLOGICAL INSTITUTE 19 JAN 1944

ROME
VILLA UMBERTO I
1943

SOME PUBLICATIONS ISSUED
BY THE INTERNATIONAL INSTITUTE OF AGRICULTURE

*A complete list of the publications will be sent on request.*

## INTERNATIONAL YEARBOOK
OF
## AGRICULTURAL STATISTICS, 1940-41

PRICE: **100 Lire.** — CLOTH-BOUND: **110 Lire.**

## ANNUAIRE INTERNATIONAL
## DE LÉGISLATION AGRICOLE, 1941
(FRENCH EDITION ONLY)

PRICE: **80 Lire.** — CLOTH-BOUND: **90 Lire.**

## BIBLIOGRAPHY
OF
## TROPICAL AGRICULTURE, 1940

PRICE: **25 Lire.**

The reproduction either in whole or in part of material printed in this Bulletin is permitted but only on the express condition that the source is duly acknowledged as follows:— ***International Bulletin of Plant Protection*** of the International Institute of Agriculture.

ROMA — STABILIMENTO TIPOGRAFICO F. FAILLI

***The radio communiqués of the International Institute of Agriculture are transmitted between 3.10 and 3.20 p. m. on the following days: Monday,*** Italian; ***Tuesday,*** French; ***Wednesday,*** English; ***Thursday,*** German; ***Friday,*** Spanish.

***They are broadcast from Rome 2 RO 11 (41.55 m. kC/s 7220) and Rome 2 RO 22 (25.10 m. kC/s 11950).***

***The hour of broadcasts is Central European Time, which is one hour ahead of Greenwich Mean Time and 5 hours ahead of Eastern Standard Time in the United States.***

## ACTIVITY OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE

**Permanent Committee of the Institute.** — The first session of the Permanent Committee of the International Institute of Agriculture in 1943 will open Monday March 13, at 10 o' clock in the morning. The Agenda deals with administrative and scientific questions that will be examined by the Committee. In our next chronicle we will give a summary of the works of this session.

**The Institute Works.** — The continuation and spread of the conflict cannot fail to have some influence on the foreign relations and works of the Institute. Under present circumstances, the first care of the Directing organs of the Institute must be to maintain and keep up to date, as far as possible, current documentation, and at the same time to direct the work of the Institute bureaus towards the study of problems which are estimated to come up for discussion as soon as international relations will be actively and usefully resumed. Some interesting questions have already been taken up by the various bureaus. Among them are: the alimentary regime of rural masses; variations in the agricultural population; the regimes of land property; certain aspects of continental economy; the industrial possibilities of the process of biologic synthesis for some important products. Statistical and legal documentations, in the meantime, are preparing a solid base for the researches that will be required by the study of these problems.

Difficulties in the way of documentary collection and the scarcity of personnel have not prevented the Institute from pushing on at a reasonable rate its studies and publications: indeed it may be said that, in so far as publications are concerned, the activity of the Institute has been quite normal.

Special mention must be made of the following studies recently published in the Institute Bulletins: *Oleaginous Crops in Europe and attempts at their development* (Monthly Crop Report and Agricultural Statistics, No. 9, 11, 12-September, November and December 1942); *Some observations concerning the spatial organisation of Agriculture* (Monthly Bulletin of Agricultural Economics and Sociology, No. 11-November 1942); *Production of clarified butter, problem of present interest*

(Monthly Bulletin of Agricultural Science and Practice, No. 12-December 1942) ; the *Decline of the population occupied in agriculture, its causes and its economic and social effects* (Monthly Bulletin of Agricultural Economics and Sociology, No. 12, December 1942) ; *Cereals growing in Europe* (Monthly Crop Report and Agricultural Statistics, No. 1, January 1943) ; *The Economic Importance of the Various Size Groups of Farms in European Agriculture* (Monthly Bull. of Agr. Economics and Sociology, No. 1, January 1943) ; *Some Aspects of the problem of alimentation in view of the work of post-war reconstruction* (Monthly Bulletin of Agricultural Science and Practice, No. 1, January 1943).

Besides the studies and articles that will appear in the Bulletins and in the International Review of Agriculture, the Institute will publish this year the following works that may be called the fundamental documentation of its activities : *International Trade in Wood*, a very important work of about 1000 pages containing the statistical data from 1925 to 1939 ; the *International Compendium of Agricultural Statistics*, a work for consultation and of great usefulness, containing data on production, trade and consumption of the most important agricultural products of the whole world from 1924 to 1938 ; the great *International Yearbook of Agricultural Statistics* 1921-1940, a volume of over 1000 pages ; the 25th of a long and interesting collection which has regularly appeared since 1912 ; the 32nd volume of the *International Yearbook of Agricultural Legislation* containing the most important laws and decrees for the year 1942 ; the *Bibliography of Tropical Agriculture*, 1941-42, 10th volume of a yearly series ; *World Rubber Production and Trade (Economic and Technical Aspects)*, 1935-39. This work is the 7th of the series of the « Monographs on the most important agricultural products on the world market » (French translation).

Volumes in printing (English text) : *Agricultural Commodities and Raw Materials. Production and Consumption in the different parts of the world* 1934-1938 ; and the German edition of the pamphlet : *Some aspects of the activities of the International Institute of Agriculture*, 1905-1940.

Finally, all the documentary material for the study on *Sericulture in the world* is now completed and a provisional text has been prepared. Material is being gathered for a study on *Tea*.

*The Activity of the International Forestry Center.* — Since the publication of our last chronicle, the International Forestry Center has completed the French and German editions of No. 4 of the year 1942 of the review « Intersylva ». Thus the second volume of this review for the year 1942 is completed. The yearly volume contains a table of the subjects dealt with in the year 1942 and an index of the names of authors as in 1941. As was done also in 1941, the present volume contains a fine coloured reproduction a a forestry landscape, showing a garden-shaped forest of Central Switzerland.

The series of monographs « Sylvae Orbis » continues.

Numbers 6 and 6*a* are devoted respectively to the French and German editions of the statements made during the session of the C.I.S. at Vienna on wood budgets. No. 7 is a monograph entitled « Technische Massnahen zur Entlastung der Holzbilanz ». Numbers 8 and 8*a* contain the French and German text respectively of the scientific statements before the session (November 1942) of the International Commission of the C.I.S. for the utilisation od wood. No. 9 (in German) is a monograph entitled « Diegrundlagen zu Aufstellung von Holzbilanzen ». The French text will soon appear as No. 9 of the series under the title « The bases of the establishment of wood budgets ».

The International Commission of the C.I.S. on wood utilisation, created the the C.I.S. Committee at the VIth session held at Vienna in September 1942, was

INTERNATIONAL BULLETIN
OF PLANT PROTECTION

1943 No. 3

## *DISCOVERIES AND CURRENT EVENTS* *

### SPAIN.

### Control Measures for the Larvae of *Chironomus* and *Ephydra* in Rice-fields †

Within the last two years in young plantations (or sowings) of rice in the humid plains of Guadalquivir, attack by larvae of Diptera (*Chironomus* sp. and *Ephydra* sp.) was observed, causing severe damage to the seedlings.

In the case of the second-mentioned insect this is probably *E. macellaria* Egger, reported in Egypt as noxious to young rice plants; without seeing the adults, however, it is not easy to determine with exactness the species in question.

After having tried various substances incorporated in the irrigation water, very satisfactory results were obtained by spraying with dilute solutions of sodium cyanide which, in weak concentrations, did not produce any lesions in the seedlings and rapidly killed off the larvae.

As the seed plots are always very limited in size, spraying can easily be carried ont with a portable one-man sprayer, and from the edges of the plot.

### ITALY.

### The Use, as Winter Treatment, of Tar-free Pyroligneous Acid Obtained by Distillation of Wood in the 'Draghetti' Charcoal Furnace §

The carbonization of the waste left after tree pruning, effected with a view to producing carbon fuel for gas producers, makes it possible to obtain in any farm large quantities of tar-free pyroligneous acid (30-40 per cent. of the wood).

Many constituents of the tar-free liquid (acetates, aldehydes, phenols, creosotes, etc.) possess, employed for winter treatments, an active protective property against insects and small rodents destroying the trunk and collar of fruit trees. In consequence, the use, both serviceable and economic, which could be made of

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from the official correspondent of the International Institute of Agriculture, Prof. MIGUEL BENLLOCH, Director of the Station of Phytopathology, Madrid, Spain.

§ Communication from Professor A. DRAGHETTI, Director of the Regional Observatory of Phytopathology, Modena, Italy.

this liquid by spraying, during the winter rest, the trunk and collar of the plants, can be seen.

The investigations carried out for four years, especially in the control of the erosion of the collar of apple trees caused by voles, have already given positive results. Control experiments on scale insects of different plants are in progress.

RUMANIA.

## Bacterial Gummosis of the Sugarbeet *

### I. Introduction.

The 1942 sugarbeet crop grown for the ' Danubiana ' works of Giurgiu, Vlasca Department, was attacked by bacterial gummosis (in Italian, ' bacterio-gommosi della barbabietola ' and in German, ' bakteriose Gummosis der Rübe ' or ' Rübenschwanzfäule ').

This year the disease made its appearance over practically the entire area cultivated to sugarbeet in the Danubian Plain, from the Dolj Department to the Ialomița Department. The crop which normally amounts to 6,000 wagon loads, in reality was only 3,000, of which only 2,400 could be utilized. Consequently, this year, because of the disease, the sugarbeet total was reduced by nearly 60-70 per cent. of the average crop obtained in the Danubian Plain.

Taking into account that the diseased sugarbeets contained an appreciable quantity of inverted sugar and that impurities were higher by 10 to 20 or even 30 per cent., this year's qualitative and quantitative production represents a percentage loss of 70-80 per cent. and even more in some areas.

Bacterial gummosis of the sugarbeet was stimulated this year by the excessive and prolonged drought of 1942. Crops grown along river banks and water-sides, where drought was not so pronounced owing to water seepage, did not suffer as much as those on the uplands and hillsides.

Before indicating the means of preventing and controlling this disease which might reappear in the years to come, some information of a biological order will be of use, information which both the sugar manufacturers and the beet-growers should know.

### II. History.

Bacterial gummosis of the sugarbeet was discovered on crops in Slavonia in 1891 by two German scientists, Kramer and Sorauer. Subsequently this disease was found in other countries and it has now spread throughout Europe and North America. It was reported for the first time in Rumania by Stift in 1909 in Bukovina, where it spread extensively in 1911. After the 1914-18 war, this disease was observ-

* Communication from the official correspondent of the International Institute of Agriculture, Prof. Dr. TRAIAN SĂVULESCU, Chief of the Phytopathological Section, Institute of Agricultural Research of Rumania, Bucharest, Rumania.

ed in sugarbeet crops in the environs of Mărășești, Putna Department, where it was not very serious. In 1922, 1923 and 1924, bacterial gummosis of the sugarbeet was exceptionally widespread and serious in beet crops in the Danubian Plain where losses were sometimes as much as 70-80 per cent. In the meantime, the disease was causing severe damage in Poland, Serbia, Italy and North America.

The sugar manufacturers, growers and authorities of Rumania were alarmed at the proportions attained by the disease in 1922 and 1927, and endeavoured in every way to suppress it. With the exception of Transylvania, sugarbeet crops throughout the country were decimated for several years. Since then it has appeared sporadically and without local severity throughout the country. This year's formidable attack is due to special climatic and pedological conditions.

### III. Symptoms of the disease.

In sugarbeet crops it is observed that the leaves of some plants turn yellow and wither, generally following a long period of dry weather during July and particularly August. Usually, wilting begins in the young leaves placed in the centre and progresses towards the periphery if drought and heat persist. It has been found that if a fall of rain occurs at the time when the leaves are only yellow and soft, these soon resume a healthy aspect and become normally turgescent again. The dug up roots show different stages of decomposition. At the outset, the tip of the root is soft, flexible and wrinkled instead of being rigid and smooth. Later the tip turns brown and even black, especially after the roots have been lifted out of the ground. Putrefaction of the root begins at the tip and advances towards the upper part, with the consequence that the whole root is wrinkled and blackened and its volume is greatly reduced. Many of the rotted roots are eaten in the ground by worms and larvae of insects.

If a root with a soft tip is cut, the cut surface is at first white, then, after a quarter or half an hour, in front of the bundles brown spots appear which turn black. This coloration (melanization) later spreads over the whole of the rest of the parenchyma. The bundles being arranged in concentric circles, their coloration appears the same, giving a very characteristic aspect. After an hour, in front of the bundles, white and glutinous drops appear.

Later this gummy secretion spreads over the entire surface of the cut section which acquires a vitreous appearance. When decomposition is more advanced, a section of the root appears at the very outset blackened and glutinous, and in the parenchyma there are lacunae and irregular cavities filled with a white gummy substance. The gum has a strong odour of acetic acid. When putrefaction is still further advanced, all the pulp of the root disappears and there only remain in the centre space the lignified elements which form a network of interlaced threads. When the process of putrefaction of the tissues (by histolysis) has attained the final stage, the roots appear hard and sclerous.

The content in acids, ash and aluminium is greater in sound beets than in diseased ones. The acid content increases in a parallel manner with the severity of the disease, while the ash and aluminium content remains the same from the beginning to the end of its evolution. According to Sorauer, this represents an indication of the

predisposition of the beet to the disease, and from which it can be recognized before the appearance of the visible symptoms.

From the anatomical pathological change undergone by the diseased roots, it may be definitely inferred that two distinct phenomena take place : a process of degeneration which is evidenced by a diminution in cellular turgidity and melanization of the tissues. This physiological degeneration precedes the process of putrefaction and is due to different external causes of predisposition, among which severe drought, absence of boron (micro-element of very high value for the metabolism of the beet) and excess calcium in the soil are the most important. If, in this precursor stage to putrefaction the plants obtain water, they return to normal, but only if there is sufficient boron in the soil in which they are growing. If boron is wanting or if it is present in an insufficient quantity, watering or irrigating the crop will have no effect. In the physiological degeneration stage, no trace of degeneration of the nucleus, protoplasm or the membrane is observed, and no evidence can be shown of the existence of a pathogenic agent, bacterium or fungus. If the change stops here, we then have the stage known as dry rot (' Trockenfäule ') and which frequently prevails in our crops.

After the process of physiological degeneration comes the process of necrosis which is manifested by the destruction of the contents of the root and the parenchymatous cellular membranes. During this stage of necrosis appear the internal cavities and lacunae which are filled with gum in the case of bacterial gummosis and with hyphae of *Phoma betae* and other fungi in the case of heart rot. If, in this last stage, drought continues, it is bacterial gummosis which appears ; if, on the contrary, the weather becomes humid, heart rot prevails.

The necrosis stage represents the maximum evolution of the disease, after which comes the final post-mortal stage of desiccation, mummification of the roots which are transformed into hard, wrinkled and black lumps.

## IV. Causes predisposing sugarbeets to bacterial gummosis.

One of the chief factors of predisposition is excessive and prolonged dry weather during summer (July and August) which modifies appreciably the absorptive power of the roots, lowering their osmotic force. This produces the first characteristic symptom, the shrivelling up of the tips of the roots, without any sign of rot, and the beets remain small even when not affected by putrefaction. Drought being a normal climatic phenomenon in the Danubian Plain, every possible precaution should be taken, by employing suitable cultivation methods, in order to prevent its harmful action.

The absence of boron constitutes the principal factor of predisposition, both as regards bacterial gummosis (through dry weather), and heart rot of the beet (wet weather). Boron is a biocatalyzer micro-element indispensable for the normal development of beets. It influences the enzymatic cellular processes : the tyrosinase acts freely on the tyrosine and causes the melanization of the tissues. Consequently, it is necessary to replenish the necessary quantity of boron in the soil after a certain number of beet crops.

The intensity of bacterial gummosis of sugarbeet and of heart rot of beets is also in direct relation with the calcium carbonate content of the soil. Analyses were made to ascertain the content of the soil in $CaCO_3$ in 242 sugarbeet-growing localities, situated in the Danubian Plain, after having determined in the field the prevalence of bacterial gummosis and heart rot; the following results were obtained.

| Number of soil samples analyzed | $CaCO_3$ content | Prevalence of the disease |
|---|---|---|
| 43 | 4.44 | Very severe |
| 39 | 5.01 | Size of beets remains small |
| 52 | 5.31 | Majority of the beets diseased |
| 25 | 6.36 | Only a few plants diseased |
| 47 | 7.29 | No disease present |
| 36 | 9.36 | No disease present |

It results from our investigations on the prevalence of the two diseases mentioned above, as well as from the analyses of soil samples taken from the different areas where beets are cultivated, that in fields which contain below 2 per cent. or above 8-9 per cent. calcium carbonate, the diseases do not appear, while they are very frequent in ground with 3-4 per cent. calcium carbonate.

It may be said that the physiological factors such as prolonged drought, boron and calcium content of the soil are the chief factors of predisposition which determine the early phases of the disease and condition its subsequent evolution.

The disease is very frequent in alkaline soils (pH = 7.3-7.8), but as soon as the degree of alkalinity has been attained, the intensity of the disease does not vary in a parallel manner with the pH.

Analyses made according to the Neubauer method of soil samples taken from sugarbeet fields in Rumania prove that these soils are generally rich in K and more or less poor in P. There is no direct correlation between the content of the soil in plant nutrients and the prevalence of the disease, as is seen from the following table :

| Number of soil samples analyzed | $K_2O$ | $P_2O_5$ | Prevalence of the disease |
|---|---|---|---|
| | mgm. per 100 gm. dry soil | | |
| 11 | 20-41<br>M = 33.46 | 1.2-8.7<br>M = 4.32 | Severe |
| 8 | 24-42<br>M = 33.33 | 0.3-8.2<br>M = 3.73 | Beets remained small |
| 13 | 22-61<br>M = 33.66 | 0.4-7.6<br>M = 3.83 | Majority of the beets diseased |
| 8 | 23-45<br>M = 34.99 | 1.7-8.6<br>M = 5.03 | Only a few plants diseased |
| 10 | 24-34<br>M = 27.70 | 0.3-4.4<br>M = 2.23 | Very few plants diseased |
| 19 | 20-50<br>M = 35.38 | 0.5-9.9<br>M = 2.82 | No disease present |

## V. The causal agent.

The beets predisposed to disease through the conditions indicated earlier on are attacked firstly by *Bacillus betae*, described by Kramer and Migula. This organism was found in large numbers in the mucilage of diseased beets. It is a rod-shaped bacterium with rounded ends, aerobic, sporiferous and which does not liquify gelatine. Other bacteria were isolated from beets attacked by bacterial gummosis, as *Bac. bussei* and *Bac. lacerans*. The first is rod-shaped, very short, very mobile, asporigenous and does not liquify gelatine. The second is slightly larger and bears considerable resemblance to the first, but differs both in size and in formation of colonies on agar and gelatine. Other bacteria were also isolated from beets showing symptoms of bacterial gummosis. Among these there is one which was isolated by Hedgecock and Metcalf from beets cultivated in America and which corresponds fairly well to that which we had already isolated in 1924 in Rumania. Our bacterium liquifies gelatine (property which is not found in the other pathogenic bacteria studied above), does not produce gas, develops very rapidly on agar and inverts sugar, fact which was verified this year, as well as in 1924, for diseased beets.

With these bacteria are associated certain saprophytic bacteria and fungi. In diseased beets stored in the sugar-works, Saccharomycetes develop on the sugar inverted by the bacteria; these yeasts transform the inverted sugar into alcohol which in turn is transformed into acetic acid by the acetic bacteria.

## VI. Preventive measures.

In fields where the disease has made its appearance, sugarbeets are not to be cultivated for at least three years. In sugarbeet cultivation a 4-year crop rotation should be closely followed.

The cultivation of sugarbeets in soils having a calcium carbonate content of over 3 per cent. and also in too light soils which easily lose moisture is to be avoided. In the Danubian Plain preference should be given to the banks where the water level is high.

Applications of borax, 20-30 kg. per hectare, to the soil in which sugarbeets are cultivated has always given good results. To obtain a regular distribution of boron in the soil, the required quantity of boron should be mixed with sand and spread about 10 days after sowing the beets. The beneficial effect of boron prevents not only the appearance of the symptoms of the disease, but also increases appreciably the sugar content and yield. Chile saltpetre also contains small quantities of boron, but the proportion is not sufficient to obviate the disease.

The disinfection of beet seed by immersion for 15 minutes in a solution of formol is also necessary. The formol should be limpid (without any milky precipitate of formic paraldehyde) and guaranteed as containing 40 per cent. formaldehyde; 250 gm. formol are mixed with 100 litres water.

In the fields where the disease has appeared, all diseased plants must be pulled up and burnt on the spot. Diseased beets transported to the mills must also be burnt. Diseased beets can be given, though with great caution, as feed for livestock (pigs and cows).

The following general cultivation methods are to be employed : —

(*a*) In autumn the ground should be ploughed deeply to 20-25 cm. without harrowing for winter.

(*b*) In spring the ground will be harrowed transversally.

(*c*) Towards the middle of March, the seed is sown in rows with a seed drill. Seed drills fitted with devices for rolling the seed on the row are to be used. The optimum spacing between rows is 35 cm.

(*d*) Ten days after sowing, a borax application will be given.

(*e*) The first weeding should not be delayed. This operation should be effected between the rows immediately after the appearance of the plants.

(*f*) When the plants have two to three leaves, they are thinned out, leaving 30-35 cm. between each plant.

(*g*) The second weeding is to be carried out between the plants, crumbling the soil. Weeding should be repeated as often as possible and after every fall of rain which brings about the formation of a crust on the soil surface.

(*h*) In weeding, carefully destroy all weeds.

(*i*) As beet varieties each react differently to the disease, the selection of resistant varieties is necessary. In this respect we can make no recommendation, but we advise organizing a small experiment field in each important sugarbeet-growing region, and to follow for several years the behaviour of each variety.

## *LEGISLATIVE AND ADMINISTRATIVE MEASURES*

**Germany.** — The 7th Decree of December 10, 1942 relative to the application of the game law dated July 3, 1934 facilitates still further the right accorded by Decree of February 5, 1937 [see this *Bulletin* 1937, No. 6, p. 120] to proprietors of enclosed land to kill rabbits, magpies and rapacious animals, by dispensing with special permits and also by allowing the said landowners to employ, in the destruction of these pests, different means formerly prohibited. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang Januar 1943, 23. Jahrg., Nr. 1, S. 6).

**Germany (Eastern Occupied Countries).** — An organization for agricultural research has been established for the territory comprising Estonia, Latvia and Lithuania.

The director of the Institute for plant diseases is also charged with the organization of the Plant Protection Service in the aforesaid territory. (*Nachrichtenblatt für den Pflanzenschutzdienst*, Berlin, Anfang Januar 1943, 23. Jahrg., Nr. 1, S. 6).

**Spain.** — By Decree of September 19, 1942 relative to the manufacture of insecticides, fungicides and material serving for their application, it has been decided that : —

Under the denomination of phytosanitary products and material will be included : (1) The products or raw materials directly utilizable because of their active principles ; (2) Products assisting the action of the first-mentioned substances ;

(3) Special preparations or remedies prepared with products pertaining to the two aforesaid groups ; (4) Products intended for improving land and preventing accidents due to inanimate causes and causing pathological conditions ; (5) The machines, equipment and implements which serve for the application for these products.

All insecticides, fungicides and similar preparations, utilized in the prophylaxy and therapeutics of plant diseases, or serving for the control of crop pests, as well as the products for improving land and preventing accidents due to inanimate causes, will be considered as subject to the obligations and restrictions of this Decree insofar as regards the methods of importation, manufacture, circulation, sale and advertising.

At the Phytopathology and Crop Pests Branch of the Department of Agriculture there has been established a central official register for the registration of the products indicated previously by the specialized Centres of the Institute of Agricultural Research.

Three months after the publication of this Decree in the *Boletín Oficial del Estado,* no product can be manufactured, sold nor put into circulation unless entered in the said register, failing which the manufacture of and trade in the product in question will be considered as fraudulent.

Foreign makes of phytosanitary products may only be imported if registered beforehand. The Phytosanitary Stations or Agricultural Divisions having similar functions will be charged with seeing that this stipulation is respected.

All persons and enterprises engaged in the manufacture of and trade in products will have to be entered in the official register of producers and distributors at the corresponding provincial agricultural divisions. In the same register will be inscribed the proprietors of equipment usually employed in operations for phytosanitary control.

The sale of phytosanitary products in bulk is prohibited. The products which will be sold in ordinary receptacles will be provided with a guarantee band and label in accordance with the official model, indicating the registration number of the product, the name of the manufacturer and chemical composition ; the content in useful ingredients is also indicated. These data will also be noted on the corresponding invoice.

The products sold as specifics will bear the corresponding phytosanitary brand and on the receptacles and wrappers will again be inscribed the data serving as guarantee similar to that indicated above.

The works and establishments for the manufacture of phytosanitary products and material will be subjected to periodical inspection by the provincial agricultural Divisions, besides the special inspections which will be decided upon by the Department.

To protect the operator against erroneous information which may cause prejudice to the rapid propagation of phytosanitary products and material, all propaganda or advertising, whatever the means employed, relative to their utility and methods of application will be revised beforehand by the Department of Agriculture. This condition will be held indispensable for the distribution of this material and in order that it may not be considered as fraudulent.

The Branch for Frauds and Adulterations of the Department of Agriculture will, with the assistance of the provincial agronomic divisions, make sure that this Decree is rigorously applied, from the standpoint of the obligations and restrictions as regards the system of guarantee for manufacture, trade and propaganda. (*Boletín Oficial del Estado*, Madrid, 23 octubre de 1942, año VII, núm. 296, págs. 8479 y 8480).

*** An ' Orden ' of December 16, 1942 supplementing the Decree dated September 19, 1942, prescribes the organization of the central official register, the wording and methods of registering the phytosanitary products and material in the said register ; the registration of manufacturers, dealers and proprietors of equipment on the provincial registers ; the methods of manufacture, sale and inspection of products and phytosanitary material, etc. (*Ibid.*, 20 de diciembre de 1942, núm. 354, págs. 10365 a 10368).

**Italy.** — Law. No. 1360 dated October 9, 1942 contanis measures regarding the production of citric acid for the manufacture of fungicides. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 1 dicembre 1942, anno 83°, n. 284, pp. 4792-4793).

*** By Ministerial Decree, dated November 25, 1942, the Bari customs office is commissioned with the sanitary control of plants, seeds and other plant products imported from abroad. (*Ibid.*, 30 gennaio 1943, anno 84°, n. 24, p. 397).

**Portugal.** — ' Portaria ' No. 10:247 of November 6, 1942 commissions the ' Junta Nacional do Vinho ' as supreme authority with regulating the trade in and distribution of copper sulphate and other copper-containing fungicides for as long as the exceptional circumstances due to the present international situation may continue. (*Diário do Govêrno*, Lisboa, 6 de Novembro de 1942, I Série, núm. 257, pág. 1370).

**Switzerland.** — By Ordinance of the Federal Department of Public Economy, dated February 13, 1943, in consequence of the appearance of the San José scale [*Aspidiotus perniciosus*] in France and in Italy, the provisions of the Decree of the Federal council dated July 6, 1940 [see this *Bulletin* 1940, No. 11, p. 216] are declared equally applicable to consignments of fresh fruit, trees, shrubs, plants and parts of plants from the aforesaid countries. The list of countries given in Article 3 of the said Decree should be completed in this sense. (*Recueil des Lois fédérales*, Berne, 18 février 1943, n°. 7, p. 129).

## *RECENT BIBLIOGRAPHY*

ALBRECHT, Hans. Bisherige und zukünftige Methoden zur Bekämpfung des Borstgrases oder des Bürstlings (*Nardus stricta*) auf den Almen. *Pflanzenbau*, Leipzig 1942, 19. Jahrg., Heft 4, S. 116-122; Heft 5, S. 145-152. Schrifttum, S. 152.

BALACHOWSKY, A. Essai sur la classification des Cochenilles (*Homoptera-Coccoidea*). *Annales de l'Ecole Nationale d'Agriculture de Grignon*, Paris, 1942, série 3, tome 3, p. [34]-48, 1 fig. Bibliographie, p. 47-48.

BASSI, Edoardo. Contro la ticchiolatura del pero e del melo. *Giornale di Agricoltura*, Roma, 1942, anno LII, n. 48, p. 296.
[*Venturia pirina* and *V. inaequalis*].

BIRAGHI, A[ntonio]. Cancri disposti a spirale su polloni di castagno. *Bollettino della R. Stazione di Patologia Vegetale* [di Roma], Firenze, 1942, anno XXI (1941), n. ser., n. 4, pp. 352-356, figg. 1-3.
[Cankers formed in consequence of processes of cicatrization].

BIRAGHI, A[ntonio]. Deformazione di rami di arancio. *Bollettino della R. Stazione di Patologia Vegetale* [di Roma], Firenze, 1942, anno XXI (1941), n. ser., n. 4, pp. 370-378, figg. 1-9.
[The primary cause determining the irregular swellings observed on orange branches lies in the action of low temperatures].

BLEES, M. Ist das Niederlegen der Reben ein wirksamer Schutz gegen Winterfrost ? *Der Deutsche Weinbau*, Mainz 1942, 21. Jahrg., Folge 30, S. 351-353, Abb. 1-9; Folge 31, S. 364-367, Abb. 10-28; Folge 32, S. 376-378, Abb. 29-39; Folge 33, S. 388-390, Abb. 40-43.

BONVICINI, Mario. Prove sperimentali contro le ruggini del frumento. *L'Italia Agricola*, Roma, 1942, anno 79, n. 11, pp. [572]-576.
[*Puccinia*].

BÖRNER, C. Die Anfälligkeit der Unterlagsreben gegen die Reblaus. *Wein und Rebe*, Mainz 1942, 24. Jahrg., Nr. 8, S. [145]-164, Abb. 1-6.
[*Dactylosphaera vitifolii*].

BORZINI, G[iovanni]. Considerazioni sulle poltiglie a rame ridotto diffuse nella campagna antiperonosporica 1942. *Bollettino della R. Stazione di Patologia Vegetale* [di Roma], Firenze, 1942, anno XXI (1941), n. ser., n. 4, pp. [313]-317.
[*Plasmopara viticola*].

BRETAN, Ioan. Mijloacele de combaterea boalei *Ophiobolus graminis* Sacc. *Agricultura Nouă*, Bucureşti, 1942, anul IX, no. 8-9, pag. 236-237.

CANDURA, Giuseppe Salvatore. Nuove malefatte di tignole cosmopolite. 1°. — *Plodia interpunctella* Hb. *L'Italia Agricola*, Roma, 1942, anno 79, n. 11, pp. [580]-584, figg. 1-5.

CARIMINI, Mario. Esperienze di lotta contro gli insetti dei granai con tricloroacetonitrile (Tritox). *Redia*, Firenze, 1942, vol. XXVIII, pp. [103]-137, figg. I-IV.

CHABROLIN, Ch. Emploi du pentachlorophénate de soude comme désherbant sélectif des céréales. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1942, tome XXVIII, n° 17, p. 625-627.

CLAUSEN, Curtis P. Entomophagous insects. New York and London, McGraw-Hill Book Company, Inc., 1940, X + 688 pp., 257 figs. References, pp. 613-659.

CLIVIO, C. Per l'economia di rame: un osservatorio antiperonosporico alla portata di ogni agricoltore. *Giornale di Agricoltura*, Roma, 1942, anno LII, n. 40, p. 249.
[Against the downy mildew of the vine (*Plasmopara viticola*)].

DE SAEGER, H. Les *Apanteles*. Hyménoptères, Braconides, parasites de Lépidoptères. *Bulletin Agricole du Congo Belge*, Bruxelles, 1942, vol. XXXIII, n° 3, p. [234]-288, fig. 61-69. Bibliographie consultée, p. 285-288.

DE VASCONCELOS, Augusto Teixeira. Fusarioses. *Revista Agronómica*, Lisboa, 1942, vol. XXX, n.° 1, pág. [19]-48, 1 fig. Referências bibliográficas, pág. 48.

DIERICK, Gerarda Francisca Elisa Maria. De ovicide werking van wintersproeimiddelen bestudeerd in het laboratorium. Assen, Van Gorcum & Comp. (G. A. Hak & H. J. Prakke), 1942, 117 blz. Literatuurlijst, blz. 115-117.
[In Dutch, with summary also in English. - The ovicidal action of winter sprays].

ESCHERICH, K. Fliegenlarven als Zerstörer von Nadelholzsamen. *Anzeiger für Schädlingskunde*, Berlin 1942, XVIII. Jahrg., Heft 9, S. 98-100, Abb. 1-2. Schrifttum, S. 100.
[*Megaselia rufipes, Lonchaea viridana, Chortophila laricicola, Hylemyia anthracina*].

FERRAGUTI, A. Contro la ticchiolatura. *L'Agricoltura Ferrarese*, Ferrara, 1942, anno XLVII, n. 11, pp. 246-250.
[*Venturia inaequalis*].

FERRARIS, P. Note fitopatologiche: il pidocchio rosso del melo (*Eriosoma lanigerum*). *Rivista di Agricoltura*, Bivio di Cumiana (Torino), 1942, anno 47, nn. 7-8-9, pp. [94]-95, 3 figg.

FRIEDRICH, Himo. Über die Bedeutung der ungleichartigen Erfolge bei Wuchsstoffbehandlung von Saatgut. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1942, 22. Jahrg., Nr. 11, S. [69]-70.

GÄUMANN, Ernst. Über den Fuchsien-Rost. *Phytopathologische Zeitschrift*, Berlin 1942, Bd. XIV, Heft 3, S. [189]-191. Schrifttum, S. 191.
[*Pucciniastrum epilobii* f. sp. *palustris*].

GEORGESCU, Const. Uscarea în masă a stejarului. *Revista Pădurilor*, București, 1942, anul 54, nr. 11-12, pag. [460]-465, fig. 1-2.
[In Rumanian, with titles also in German and French and with summary in French: ' Massenabsterben der Eiche '. - ' Le dépérissement en masse du chêne '.

GERBALDI, Costanzo. Il problema della sostituzione del legno quassio nella lotta contro le *Hoplocampa*. *Rivista di Frutticoltura*, Ravenna, 1942, vol. 6°, n. 4, pp. [108]-111, figg. 1-2.

GERM, Hermann. Kultur- und Unkrauthafer. „ Wilde Hafer " im Santgut von Saathafer. *Wiener Landwirtschaftliche Zeitung*, Wien 1942, 92. Jahrg., Nr. 44, S. 308-309, 3 Abb.

GIGANTE, R[oberto]. La " mazzarella „ del cotone. *Bollettino della R. Stazione di Patologia Vegetale* [di Roma], Firenze, 1942, anno XXI (1941), n. ser., n. 4, pp. 332-351, figg. 1-11, tav. VII.
[A disorder caused solely by mechanical factors].

GIGANTE, R[oberto]. Galle prodotte da *Tylenchus tritici* sopra spighe di grano. *Bollettino della R. Stazione di Patologia Vegetale* [di Roma], Firenze, 1942, anno XXI (1941), n. ser., n. 4, pp. 357-369, figg. 1-10. Bibliografia, p. 369.

GOETSCH, W., gemeinsam mit GRÜGER, R., LATOSSEK, T., und OFFHAUS, K. Beiträge zur Bekämpfung von Ameisenstaaten. II. Teil (Untersuchungen 1939/40). *Zeitschrift für angewandte Entomologie*, Berlin 1942, Bd. XXIX, Heft 3, S. [443]-474, Kurven 1-6. Literaturverzeichnis, S. 474.

GOIDÀNICH, Gabriele. I primi documenti dell'esistenza dei funghi microscopici, con speciale riferimento all'opera di Hook e di Malpighi. *Bollettino della R. Stazione di Patologia Vegetale* [di Roma], Firenze, 1942, anno XXI (1941), n. ser., n. 4, pp. 318-331, figg. 1-4.

GOIDÀNICH, Gabriele. L'opera fitopatologica di Giovanni Targioni Tozzetti e la sua importanza nella storia della patologia vegetale. *I Georgofili. Atti della R. Accademia dei Georgofili*, Firenze, [1943], sesta ser., vol. VIII (1942), disp. 3ª-4ª, pp. [271]-283.

GÖSS, Bruno. Zur Schädlingsbekämpfung mit Dinitroorthokresolen. *Geisenheimer Mitteilungen*, Geisenheim 1942, 57. Jahrg., Nr. 11, S. 81-84. Schriftenverzeichnis, S. 83-84.

GREIS, H. Die Blattbräune der Zuckerrübe. *Zuckerrübenbau*, Hannover 1942, 24. Jahrg., Heft 12, S. [137]-146, Abb. 1-5. Zitiertes Schrifttum, S. 146.
[According to the author, this disease of sugar-beets is caused by *Alternaria tenuis* and not by *Clasterosporium* (*Sporodesmium*) *putrefaciens*].

GROSJEAN, Jan. Het parasitaire karakter van eenige Polyporaceeën. Purmerend, J. Muusses, MCMXLII, [IV] + 96 blz. Geraadpleegde literatuur, blz. 91-96.
[In Dutch, with summary also in English. - Treats on the parasitic character of certain Polyporaceae (*Fomes igniarius, F. laricis* and *F. pomaceus*)].

GUYOT, A. L. De quelques affinités morphologiques intergénériques chez la famille des Composées, en rapport avec l'étude biométrique des Urédinées parasites de ces végétaux. *Annales de l'Ecole Nationale d'Agriculture de Grignon*, Paris, 1942, série 5, tome 3, p. [78]-92, fig. 1-2.

GUYOT, A. L. Etudes expérimentales sur les Urédinées hétéroïques réalisées au Laboratoire de Botanique de l'Ecole Nationale d'Agriculture de Grignon (Seine-et-Oise) au cours de l'année 1941. *Annales de l'Ecole Nationale d'Agriculture de Grignon*, Paris, 1942, série 3, tome 3, p. [93]-99.

GUYOT, A. L., [et] VIENNOT-BOURGIN, G. A propos d'une forme écidienne sur *Valerianella* en rapport avec *Puccinia cynodontis* Desm. *Annales de l'Ecole Nationale d'Agriculture de Grignon*, Paris, 1942, série 3, tome 3, p. [100]-105, 1 fig.

HAAG, Karl. Zum Frostschaden 1942. *Der Deutsche Weinbau*, Mainz 1942, 21. Jahrg., Folge 27, S. 317-318.

HÖFLER, Karl. Über Kalkchlorose und Calciose im Jahre 1941 und W. S. Iljins biochemische Untersuchungen. *Phytopathologische Zeitschrift*, Berlin 1942, Bd. XIV Heft 3, S. [192]-203. Schrifttum, S. 203.

HÖLDOBLER, Karl. Über den Nutzen der roten Waldamejse. *Zeitschrift für angewandte Entomologie*, Berlin 1942, Bd. XXIX, Heft 3, S. [518]-528. Schrifttum, S. 526-528. [*Formica rufa*].

HRISAFI, C. Un dăunător al cepei comestibile. Nematodul *Anguillulina dipsaci* Kuhn. *Viața Agricolă*, București, 1942, anul XXXIII, no. 9, pag. 285-287, fig. 1-4.

ITZEROTT, H. Die Maikäferbekämpfung 1942 im Altmühltal. *Mitteilungen für die Landwirtschaft*, Berlin 1942, 57. Jahrg., Heft 40, S. 703-704. 2 Abb.
[*Melolontha*].

JAHN, Else. Untersuchungen über die Arthropodenfauna von Tannenbeständen und ihre Empfindhichkeit gegen Insektizide. *Centralblatt für das gesamte Forstwesen*, Wien 1942, 68. Jahrg., Heft 9, S. [151]-172. Literatur, S. 171-172.

JANCKE, O. Über gewöhnliche und ungewöhnliche Wirtspflanzen der schädlichen *Apion*-Arten. *Anzeiger für Schädlingskunde*, Berlin 1942, XVIII. Jahrg., Heft 11, S. 125-130, Abb. 1-4. Schrifttum, S. 130.

JOB, Vittorio. Note di entomologia : la lotta contro la *Cydia pomonella*. *Giornale di Agricoltura*, Roma, 1942, anno LII, n. 39, p. 242, 1 graf.

JOB, Vittorio. I bagnanti nelle irrorazioni contro la *Cydia pomonella*. *Rivista di Frutticoltura*, Ravenna, 1942, vol. 6°, n. 4, pp. [105]-107.

JUNG, Wilhelm. Beiträge zur Kenntnis der Lärchenminiermotte (*Coleophora laricella* Hb.). *Zeitschrift für angewandte Entomologie*, Berlin 1942, Bd. XXIX, Heft 3, S. [475]-517, Abb. 1-22. Schrifttum, S. 515-517.

KLING, M. Ein Beitrag zur Keimfähigkeit der Unkrautsamen. Ein 52jähriger Versuch. *Praktische Blätter für Pflanzenbau und Pflanzenschutz*, München 1942, XX. Jahrg., Heft 2, S. 43-47. Schrifttum, S. 47.

KÖHLER, Erich. Die Ueberempfindlichkeitsreaktion bei *Solanum nodiflorum* Jacq. gegenüber Stämmen des Tabakmosaik- und des Kartoffel-X-Virus. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1942, 52. Bd., Heft 9/10, S. 450-454, Abb. 1-2. Schriftenverzeichnis, S. 454.

KÜSTER, Ernst. Zur pathologischen Morphologie der Blüten und Blütenstände. 2. Beitrag. Durchwachsung der Blütenstände von *Trifolium repens*. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1942, 52. Bd., Heft 9/10, S. [433]-449, Abb. 1-18. Literatur, S. 449.

KRATOCHVIL, Josef. Über wenig bekannte Mohnschädlinge. *Wiener Landwirtschaftliche Zeitung*, Wien 1942, 92. Jahrg., Nr. 43, S. 302, Abb. 1-2.

LENDVAI, Desiderio. Un insetto dannoso al cipresso nella provincia del Carnaro. *La Rivista Forestale Italiana*, Roma, 1942, anno IV, n. 6-7, pp. 59-64, 7 figg. [*Buprestis cupressi*].

MAMELI CALVINO, Eva. Virosi bollosa e mosaico internervale in diverse varietà di soja. *La Costa Azzurra Agricola Floreale*, Sanremo, 1942, anno XXII, nn. 11-12, pp. 85-87, 1 fig.

MANOLACHE, C. I. Combaterea păduchilor cenușii *Brevicoryne brassicae* L. dela varză. *Viața Agricolă*, București, 1942, anul XXXIII, no. 9, pag. 287-288, 2 fig.

MARSAIS, Paul. Avec peu de cuivre peut-on espérer vaincre le mildiou ? *Annales de l'Ecole Nationale d'Agriculture de Grignon*, Paris, 1942, série 3, tome 3, p. [25]-33. [*Plasmopara viticola*].

MARSAIS, Paul. Nouvelles formules anti-mildiou à employer en 1943. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1942, tome XXVIII, nº 17, p. 615-617. [*Plasmopara viticola*].

MAS-GUINDAL, Joaquin. Las malas hierbas y las plantas medicinales. Las Papilionaceas (Leguminosas). *Ministerio de Agricultura. Sección de Publicaciones, Prensa y Propaganda. Hojas Divulgadoras*, Madrid, 1942, año XXXIV, 2.ª serie, n.º 45, 12 págs., 23 figs.

MELIS, Antonio. La questione antidacica nell'attuale momento. *Redia*, Firenze, 1942, vol. XXVIII, pp. [139]-151. [*Dacus oleae*].

MELIS, Antonio. Tisanotteri italiani : VIII. Genus *Limothrips*. *Redia*, Firenze, 1942, vol. XXVIII, pp. [153]-207, figg. I-XXIX.

MERELO-BARBERA, S. Nuevas orientaciones en la lucha contra las plagas del campo. *Ceres*, Valladolid, 1942, año VII, núm. 78, págs. 16 y 17.

MINISTÈRE DE L'AGRICULTURE. ADMINISTRATION DES FORÊTS, CHASSE ET PÊCHE. COMMISSION D'ÉTUDES DES ENNEMIS DES ARBRES, DES BOIS ABATTUS ET DES BOIS MIS EN OEUVRE. Bulletin nº 24. Le lophyre du pin et le némate de l'épicéa. *Annales de l'Ecole Nationale Forestière et de la Station de Recherches et Expériences*, Paris, 1941, tome VIII, fasc. 1, p. [81]-86. [*Diprion* (*Lophyrus*) *pini*, *Nematus abietinus*].

MINISTÈRE DE L'AGRICULTURE. ADMINISTRATION DES FORÊTS, CHASSE ET PÊCHE. COMMISSION D'ÉTUDES DES ENNEMIS DES ARBRES, DES BOIS ABATTUS ET DES BOIS MIS EN OEUVRE. Bulletin nº 25. Les blessures des arbres. *Annales de l'Ecole Nationale Forestière et de la Station de Recherches et Expériences*, Paris, 1941, tome VIII, fasc. 1, p. [87]-102, pl. I-III.

MINISTÈRE DE L'AGRICULTURE. ADMINISTRATION DES FORÊTS, CHASSE ET PÊCHE. COMMISSION D'ÉTUDES DES ENNEMIS DES ARBRES, DES BOIS ABATTUS ET DES BOIS MIS EN OEUVRE. Bulletin nº 26. Les chermes du sapin, *Dreyfusia nüsslini* et *Dreyfusia piceae*. *Annales de l'Ecole Nationale Forestière et de la Station de Recherches et Expériences*, Paris, 1941, tome VIII, fasc. 1, p. [103]-107, pl. -I-II.

MINISTÈRE DE L'AGRICULTURE. ADMINISTRATION DES FORÊTS, CHASSE ET PÊCHE. COMMISSION D'ÉTUDES DES ENNEMIS DES ARBRES, DES BOIS ABATTUS ET DES BOIS MIS EN OEUVRE. Bulletin nº 27. Le bleuissement du bois des résineux. *Annales de l'Ecole Nationale Forestière et de la Station de Recherches et Expériences*, Paris, 1941, tome VIII, fasc. 1, p. [109]-115. [*Ceratostomella* spp., *Discula pinicola*, *Hormonema dermatioides*, *Trichosporium tingens*, *Leptographium lundbergii*, etc.].

MINISTÈRE DE L'AGRICULTURE. ADMINISTRATION DES FORÊTS, CHASSE ET PÊCHE. COMMISSION D'ÉTUDES DES ENNEMIS DES ARBRES, DES BOIS ABATTUS ET DES BOIS MIS EN OEUVRE. Bulletin nº 28. Les Termites de France. *Annales de l'Ecole Nationale Forestière et de la Station de Recherches et Expériences*, Paris, 1941, tome VIII, fasc. 1, p. [117]-123. [*Calotermes flavicollis*, *Reticulitermes lucifugus*, *R. flavipes*].

MINISTÈRE DE L'AGRICULTURE. ADMINISTRATION DES FORÊTS, CHASSE ET PÊCHE. COMMISSION D'ÉTUDES DES ENNEMIS DES ARBRES, DES BOIS ABATTUS ET DES BOIS MIS EN OEUVRE. Bulletin nº 29. La pourriture alvéolaire du bois des pins: le polypore du pin. *Annales de l'Ecole Nationale Forestière et de la Station de Recherches et Expériences*, Paris, 1941, tome VIII, fasc. 1, p. [125]-132.
[*Trametes pini*].

MINISTÈRE DE L'AGRICULTURE. ADMINISTRATION DES FORÊTS, CHASSE ET PÊCHE. COMMISSION D'ÉTUDES DES ENNEMIS DES ARBRES, DES BOIS ABATTUS ET DES BOIS MIS EN OEUVRE. Bulletin nº 30. La protection du bois abattus et mis en oeuvre contre les dégâts des insectes. *Annales de l'Ecole Nationale Forestière et de la Station de Recherches et Expériences*, Paris, 1941, tome VIII, fasc. 1, p. [133]-167.

MORALES AGACINO, E. Langostas y saltamontes. Claves para identificar las especies más comunes en España. *Dirección General de Agricultura. Sección de Plagas del Campo y Fitopatología. Servicio de Lucha contra la Langosta. Publicación núm. 10*, Madrid, Estación Central de Fitopatología Agrícola, 1942, 67 págs., 113 figs.
[Locustidae].

MÜLLER, F. Die Ursachen der Auswinterungsschäden 1941/42 im rechtsrheinischen Bayern. *Praktische Blätter für Pflanzenbau und Pflanzenschutz*, München 1942, 22. Jahrg., Heft 5/6, S. [113]-122.

PALIATSEAS, Platon. Die Olivenfliege (*Dacus oleae*) in Griechenland. *Anzeiger für Schädlingskunde*, Berlin 1942, XVIII. Jahrg., Heft 10, S. 111-115.

PAȘCOVSCHI, S. Atacul șoarecilor asupra unor arbori exotici. *Revista Pădurilor*, București, 1942, anul 54, nr. 11-12, pag. [466]-468, fig. 1-4.
[In Rumanian, with titles also in French and in German, and with summary in German: 'L'attaque des souris (rats) sur quelques-uns des arbres exotiques'. - 'Mäusenangriff über einige exotische Bäume'].

PETRI, L[ionello]. Rassegna dei casi fitopatologici osservati nel 1941. *Bollettino della R. Stazione di Patologia Vegetale* [di Roma], Firenze, 1942, anno XXII (1942), n. ser., n. 1, pp. [1]-62, fig. 1.
[In Italy].

PEYRONEL, Beniamino. A proposito di un caso di deperimento di frumento coltivato su prato naturale dissodato. *Nuovo Giornale Botanico Italiano* (Nuova serie), Firenze, 1942, vol. XLIX, n. 2, pp. 290-292.
[A withering due to the presence of several parasites and, in particular, of *Calonectria graminicola*].

PICHLER, Friedrich. Der Schmalfilm (16 mm), ein wichtiges Hilfmittel für die phytopathologische Forschung. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1942, 22. Jahrg., Nr. 11, S. 70-72, Abb. 1-2.

PIACCO, R. Danni per defogliazione del mais alla fioritura. *Risicoltura*, Vercelli, 1942, anno XXXI, n. 7-8-9, pp. 107-114, figg. 1-4.

PUSSARD, R. A propos de la teigne de la pomme de terre (*Phthorimaea operculella. Zell.*): *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1942, tome XXVIII, nº 17, p. 586-587.

RAUCOURT, M., et BEGUÉ, H. Revue de phytopharmacie VI. *Annales Agronomiques*, Paris, 1942, 12e année, nº 3, p. [451]-486, 2 fig. Références bibliographiques, p. 479-486.

REINMUTH, E. Die Bekämpfung des Rübenaaskäfers in Mecklenburg im Jahre 1941. *Anzeiger für Schädlingskunde*, Berlin 1942, XVIII. Jahrg., Heft 9, S. 100-102.
[*Blitophaga*].

RIEHM, E. Pflanzenschutz im Kriege nicht vernachlässigen! *Mitteilungen für die Landwirtschaft*, Berlin 1943, 58. Jahrg., Heft 5, S. 70-80.

RUGGIERI, G[aetano]. Relazione sull'attività del "Posto di osservazioni sul mal secco degli agrumi„ nel 1941-42. *Bollettino della R. Stazione di Patologia Vegetale* [di Roma], Firenze, 1942, anno XXII (1942), n. ser., n. 1, pp. 63-86, figg. 1-4, tav. I-III.
[*Deuterophoma tracheiphila*].

Săvescu, D. Combaterea cotarilor (*Cheimatobia brumata, Hybernia defoliaria*). *Agricultura Nouă*, Bucureşti, 1942, anul IX, no. 8-9, pag. 237-242, fig. 1.

Schultz, H. Arbeitsmethoden bei Kultur- und Infektionsversuchen mit *Pythium* — Arten. *Zentralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten*, II. Abt., Jena 1942, Bd. 105, Nr. 14/16, S. 248-254. Schrifttum, S. 254.

Schwerdtfeger, F. Über Herdtheorie und Massenwechsel der Insekten. *Anzeiger für Schädlingskunde*, Berlin 1942, XVIII. Jahrg., Heft 11, S. [121]-124. Schrifttum, S. 124.

Sempio, Cesare. Terzo contributo alla conoscenza dell'azione esercitata da vari fattori ambientali su alcune malattie parassitarie di piante coltivate (peronospora della lattuga). *Rivista di Biologia*, Perugia, 1942, vol. XXXIV, pp. [22]-47, figg. 1-6, graf. 1-9.
[*Bremia lactucae*].

Sempio, Cesare. Influenza di alcuni glucosidi isomeri sullo sviluppo della ruggine del fagiolo e di altre malattie fungine. *Rivista di Biologia*, Perugia, 1942, vol. XXXIV, pp. [52]-56.
[*Uromyces appendiculatus, U. fabae, Bremia lactucae*].

Servadei, Antonio. Sulla presenza in Albania della *Ceresa bubalus* F. e la sua diffusione in Europa. *Redia*, Firenze, 1942, vol. XXVIII, pp. [1]-10, figg. I-III. Bibliografia, pp. 5-10.

Sibilia, Cesare. Le Sclerotinie, pericolosi nemici degli ortaggi. *Rivista della R. Società Toscana d'Orticoltura*, Firenze, 1942, anno 67mo, vol. XXVII, n. 9-10, pp. 156-157.
[*Sclerotinia sclerotiorum, Scl. minor*].

Stanley, W. M. On the apparent phosphatase activity of tobacco mosaic and bushy stunt viruses. *Archiv für die gesamte Virusforschung*, Wien 1942, Bd. II, Heft 4, S. [319]-324. References, S. 324

Störmer, und von Bernuth, Inge. Auftreten von Viruskrankheiten an Kartoffeln im Jahre 1942. *Mitteilungen für die Landwirtschaft*, Berlin 1942, 57. Jahrg., Heft 45, S. 785-787.

Thalenhorst, Walter. Der Zusammenbruch einer Missenvermehrung von *Diprion pini* L. und seine Ursachen. *Zeitschrift für angewandte Entomologie*, Berlin 1942, Bd. XXIX, Heft 3, S. [367]-411, Abb. 1-6. Literaturverzeichnis, S. 410-411.

Van den Brande, J. Cephus-Onderzoek. Vergelijking der Halmen van aangetaste Planten. *Mededeelingen der Landbouwhoogeschool en der Opzoekingsstations van den Staat te Gent*, Gent 1942, deel X, nr 3, bladz. [182]-193, fig. 1-5.
[With titles and summaries in Flemish, French, German and English : ' Cephus-Onderzoek. (Verglijking van ziekte en gezonde *Halmen* van aangetaste Planten) '. - ' Le cèphe du blé. (Les tiges saines et parasitées de plantes attaquées) '. - ' Die Getreide Halmwespe, (Kranke und gesunde Halme befallener Pflanzen) '. - ' The wheat-stem sawfly. (Healthy and attacked stems of parasited plants) '. — *Cephus pygmaeus*].

Venturi, Filippo. La *Lema melanopa* L. (*Coleoptera, Chrysomelidae*). *Redia*, Firenze, 1942, vol. XXVIII, pp. [11]-88, figg. I-XIV, tav. I-III. Bibliografia consultata, pp. 79-86.

Viennot-Bourgin, G. Contribution à l'étude de la flore cryptogamique du bassin de la Seine (15me note). Étude de quelques champignons parasites. *Annales de l'Ecole Nationale d'Agriculture de Grignon*, Paris, 1942, série 3, tome 3, p. [106]-127, fig. 1-14. Bibliographie, p. 109, 112, 116, 121-122, 125.
[*Stagonosporopsis hortensis* on beans, *Marssonina panattoniana* on lettuce, *Diplodina destructiva* on tomato fruits, *Rhynchosporium secalis* on barley, *Cercospora microsora* on linden, *Botryosphaeria dothidea* on the rose].

Viennot-Bourgin, G. Contribution à la connaissance des tavelures des Rosacées. 2me note. Les tavelures du pêcher, du prunier, de l'amandier et du cerisier. *Annales de l'Ecole Nationale d'Agriculture de Grignon*, Paris, 1942, série 3, tome 3, p. [128]-154, fig. 1-10. Bibliographie, p. 153-154.
[*Cladosporium carpophilum, Cl. cerasi*].

WIESMANN, R. Versuche zur Bekämpfung des Maikäferengerlings in Rebenneuanlagen. *Schweizerische Zeitschrift für Obst- und Weinbau*, Wädenswil 1942, 51. Jahrg., Nr. 25, S. 479-483.
[*Melolontha*].

WIESMANN, R. Neues über die Kirschfliege, *Rhagoletis cerasi*. *Schweizerische Zeitschrift für Obst- und Weinbau*, Wädenswil 1942, 51. Jahrg., Nr. 25, S. 483-485.

WINTER, A. Gerhard. Der Einfluss partieller Sterilisation des Bodens auf die Entwicklung der Laufhyphen von *Ophiobolus graminis*. *Phytopathologische Zeitschrift*, Berlin 1942, Bd. XIV, Heft 3, S. [204]-302, Abb. 1-9. Schrifttum, S. 296-302.

WUTTKE, H. Schutz von Zuchtgärten gegen Hasen durch Elektrozaun. *Mitteilungen für Landwirtschaft*, Berlin 1942, 57. Jahrg., Heft 52, S. 907.

ZACHER, Friedrich. Achtung auf den Brotkäfer! *Mitteilungen der Gesellschaft für Vorratsschutz E. V., Berlin-Steglitz*, Berlin 1942, 18. Jahrg., Nr. 6, S. 69-71, 5 Abb. [*Sitodrepa panicea*].

ZILLIG, Hermann. Zehnjährige Erfahrungen mit gemeinsamen Spritzbrüheanlagen im Weinbau. *Der Deutsche Weinbau*, Mainz 1942, 21. Jahrg., Folge 35, S. 413-417, Abb. 1-3; Folge 37, S. 438-439.

PROF. UGO PAPI, *Segretario generale dell'Istituto, Direttore responsabile.*

STABILIMENTO TIPOGRAFICO F. FAILLI - ROMA, 15 MARZO 1943.

nstalled on November 23 and 24 at Berlin and Eberswald. This is a special consultative Commission of the Committee of the C.I.S. which, in compliance with the C.I.S. Statuts, is charged with the study of questions relative to the utilisation of raw wood. This commission is composed of experts chosen in the adhering countries by the C.I.S. Committee. This session was attended by the experts of the following countries : Germany, Bulgaria, Croatia, Spain, Finland, France, Hungary, Italy, Norway, the Netherlands, Romania, Slovakia, Sweden, Switzerland, and by the Secretary General of the International Institute of Agriculture. The International Forestry Center was represeted by its Vice-President. After a speech by the President of the Commission, the Director of the C.I.S. spoke on the importance of international cooperation in the field of wood utilisation. In another statement, the President of the Commission dealt with the question of researches on wood in Finland. Afterwards, one of the Chiefs of Division of the C.I.S. illustrated the Statutes and organisation of the Commission. Other matters dealt with in the course of the meetings were the management, practical activity of the Commission, its urgent tasks especially as regards researches, and the organisation of groups of experts for special purposes. One of the meetings was held at Eberswalde, where, after doing away with a number of other organisation problems, the Vice-President of the Commission spoke on the organisation and results of the researches on wood in Germany. The respective delegates spoke next on the situation and results of the works on wood researches made in Sweden, Italy, France, Bulgaria and Switzerland. After the meeting, the delegates, under the guidance of its Director, were conducted to visit the Bureau of the Reich for wood research at Eberswald. The installation session of the International Commission of the C.I.S. for wood utilisation was a great succes, and great results were attained. As has already been said, a summary of the discussions, with the text of statements made, will shortly be published as No. 8 and No. 8*a* respectively of the series of monographs « Sylvae Orbis » issued by the International Forestry Center.

## BOOKS PRESENTED TO THE LIBRARY OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE

**Annali** del latte e suoi derivati dell'anno fascista XIX, a cura della rivista « Il latte ». Milano, [« Tipez »]. 1942. 236 p.

**Berger**, H. Tagesfragen der landwirtschaftlichen Praxis aus den Erfahrungen der « Reichsland ». 2. Aufl. Prag, Reichsnährstandsverlag G.m.b.H., Zweigniederlassung Böhmen u. Mähren, 1942. 95 p.

**De Polzer**, A. Statistiche agrarie. Milano, A. Giuffrè, 1942. 234 p. (Trattato elementare di statistica diretto da Corrado Gini. v. 5. Statistica economica, pte 3a).

**Dorner**, W., **Damont**, P., **Chavannes**, D. Microbiologie laitière. Lausanne, Payot, 1942. 224 p.

**Fiaccadori**, A. Agricoltura, industria e formazioni spaziali. Roma, « Rassegna monetaria », 1942. 72 p.

**Finck von Finckenstein**, H. W. Der Aufbau der Agrarwirtschaft ; Probleme der Unternehmungsformen und Wirtschaftspläne. Basel, Verlag für Recht u. Gesellschaft, 1942. VII, 237 p.

**Gesellschaft** für die Geschichte und Bibliographie des Brauwesens E. V. Jahrbuch 1941. Berlin, [Zentraldruckerei Gebr. Unger] 1941. 159 p.

**Gussoni**, L. Guida bibliografica italiana dell'ingegneria rurale, anni 1931-35. Milano, Centro di studi per le applicazioni dell'ingegneria all'agricoltura, 1942. 55 p. ([Pubblicazioni], 10.)

**Laur**, E. Volkswirtschaftliche Grundlagen der Wirtschaftslehre des Landbaus und der Bauernpolitik ; eine gemeinverständliche Einführung in die Hauptprobleme der theoretischen Nationalökonomie. 3. Aufl. Aarau, Wirz & Cie., 1942. 89 p.

**Luxenberg**, B. Brotpolitik. Leipzig, W. Goldmann, [1942]. 372 p.

**Mäding**, E. Landespflege ; die Gestaltung der Landschaft als Hoheitsrecht und Hoheitspflicht. Berlin, Deutsche Landbuchhandlung, 1942. 254 p.

**Manetti**, C. La casa dell'uomo in campagna ; progetti e realizzazioni moderne di case rurali. Firenze, Marzocco, [1940]. VII, 137 p.

**Manuello Bertetto**, S. Cenni di politica economica e finanziaria del Regime nell'agricoltura. Milano, V. Colonnello, [1941]. 95 p.

**Müller**, W. Quellen des Preussischen Geheimen Staatsarchivs zu Berlin-Dahlem zur bäuerlichen Hof- und Sippenforschung im Kreise Lebus. Goslar, Verlag Blut und Boden, 1940. 79 p. (Quellen zur bäuerlichen Hof- und Sippenforschung, Band 29).

**Nancy**. Ecole nationale forestière. Annales de l'Ecole nationale forestière et de la Station de recherches et expériences. v. 8. fasc. 1. 1941. Nancy, Berger-Levrault, 1941. 167 p.

**Schmid**, F. J. Rechts- und Wirtschaftsgeschichte der Herrschaft und Hofmark Winhöring. Hirschenhausen, J. Weber. 1940. 84 p. (Südostbayerische Heimatstudien hrsg. von J. Weber, Band 17).

**Schönberg**, M. Betriebspolitik. Berlin, P. Parey, 1942. 99 p. (Hof und Betrieb ; Schriften zur landwirtschaftlichen Betriebslehre und Sozialwissenschaft. Hft. 3.)

**Schönberg**, M. Raum und Intensität im Landbau. Berlin, P. Parey, 1942. 35 p. (Hof und Betrieb; Schriften zur landwirtschaftlichen Betriebslehre und Sozialwissenschaft. Hft. 4.)

**Stejskal**, F. Hilfe bei Elementar-Katastrophen an landwirtschaftlichen Kulturen. Brünn, [Prag, Drückerei des Protektorates Böhmen und Mähren]. 1941. 70 p.

**Stöver**, W. Die wirtschaftliche Entwicklung des Butjadinger Bauerntums gezeigt am Beispiel der Eckwarder Bauernhöfe. Oldenburg i. O., G. Stalling, 1942. 136 p. (Schriften der Wirtschaftswissenschaftlichen Gesellschaft zum Studium Niedersachsens, Neue Folge. Provinzial-Institut für Landesplanung und niedersächsische Landes- und Volksforschung Hannover-Göttingen. Veröffentlichungen. Reihe A, I, Bd. 19.)

**Stuckart**, W., Höhn, R., Schneider, H. Verfassungs-, Verwaltungs- und Wirtschaftsgesetze Norwegens ; Sammlung der wichtigsten Gesetze, Verordnungen und Erlasse. (Verfassungs-, Verwaltungs- und Wirtschaftsgesetze der Völker. Sektion Europa. Gesetze, Verordnungen und Erlasse, hrsg. von Wilhelm Stuckart. [und] Reinhard Höhn.) v. 1.

**Surányi-Unger**, T. A Magyar gazdasági jólét útja. Budapest, « Stádium », [1940]. 112 p. [Hungarian Economic Welfare.]

**Von Wettstein**, W. Die Vermehrung und Kultur der Pappel. 3. verbesserte Auflage. Frankfurt am Main, Sauerländer, 1943. 49 p.

## SOME PUBLICATIONS ISSUED BY THE INTERNATIONAL INSTITUTE OF AGRICULTURE

***A complete list of the publications will be sent on request.***

---

**Actes de la Conférence internationale pour l'organisation de la lutte contre les sauterelles.** Rome, 28-31 octobre 1920. (1921, 171 pp., 8vo) . . . . . **15 Lire**

**The Loss to Agriculture caused by Factory Fumes.** Lectures given at the International Institute of Agriculture by Professor H. CRISTIANI, Geneva, and Professor Dr. J. STOKLASA, Prague. (1927, 26 pp., 3 figs., 25 pls., 8vo) . **15** »

**Actes de la Conférence internationale pour la protection des plantes.** Rome, 10-16 avril 1929. (1929, 201 pp., 8vo) **25** »

**La législation du commerce des plantes.** (1938, XVI + 364 pp., 8vo) . . . . . **35** »

---

# INTERNATIONAL BULLETIN
OF
# AGRICULTURAL LAW

**Published every six months.**

ANNUAL SUBSCRIPTION: **45 Lire**

---

# INTERNATIONAL BIBLIOGRAPHY
OF
# AGRICULTURAL ECONOMICS

**Published quarterly in a trilingual edition (English-French-German).**

ANNUAL SUBSCRIPTION: **30 Lire**

---

***The prices of all publications issued by the International Institute of Agriculture include postage.***

# INTERNATIONAL REVIEW OF AGRICULTURE

ANNUAL SUBSCRIPTION TO THE REVIEW (4 PARTS) : **125 Lire**
SEPARATE NUMBERS OF THE REVIEW (4 PARTS) : **14 Lire**

Published monthly and incorporating the following four parts, which are also published separately and in advance as *reprints* from the *Review* : —

(1) **Monthly Bulletin of Agricultural Economics and Sociology.**
(2) **Monthly Crop Report and Agricultural Statistics.**
(3) **Monthly Bulletin of Agricultural Science and Practice.**
(4) **International Bulletin of Plant Protection.**

ANNUAL SUBSCRIPTION FOR EACH PART SEPARATELY : **45 Lire.**
SEPARATE NUMBERS : **5 Lire.**

In the *Monthly Crop Report and Agricultural Statistics* quantities are expressed also in the units used in the United States of America.

---

The French edition is obtainable at the same price as the English and appears under the following title : —

## REVUE INTERNATIONALE D'AGRICULTURE

(1) **Bulletin mensuel de Renseignements économiques et sociaux;** (2) **Bulletin mensuel de Statistique agricole et commerciale ;** (3) **Bulletin mensuel de Renseignements techniques ;** (4) **Moniteur international de la Protection des Plantes.**

---

The German edition consists only of parts 1, 2 and 3 which are published under the following title : —

## INTERNATIONALE LANDWIRTSCHAFTLICHE RUNDSCHAU

I. AGRARWIRTSCHAFT – II. AGRARSTATISTIK – III. AGRARTECHNIK

***The German edition is on sale at the***

**Reichsnährstandsverlag G. m. b. H., Berlin N 4, Linienstr. 139/140.**

---

***The prices of all publications issued by the International Institute of Agriculture include postage.***